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It is not just your opinion. gender equity endorsement of Latin American students and their peers at school

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Abstract

Promoting adhesion to attitudes toward gender equity is critical to achieving more equal societies, yet endorsement of gender equality among Latin American adolescents remains lower than global averages. This study investigates the role of school environments, civic knowledge, and authoritarianism in shaping gender equity attitudes among 8th-grade students in Chile, Colombia, the Dominican Republic, Mexico and Peru, using data from the International Civic and Citizenship Education Study (ICCS) 2016. Fitting different regression models, we explore the relationships between individual socioeconomic status, classroom practices, and school-wide ideological climates on gender equity endorsement. Findings highlight the pivotal influence of civic knowledge and open classroom discussions as protective factors against authoritarian beliefs, which are negatively associated with gender equity support at both individual and contextual levels. Moreover, peer-group ideological climates significantly shape student attitudes, demonstrating the importance of school environments in fostering or hindering egalitarian beliefs. We discussed the role of school practices in the promotion of gender equity. These findings contribute to the global goal of citizenship education and the Sustainable Development Goals (SDG), particularly Goal 5, emphasising the role of schools in promoting democratic and gender-equitable values.

Keywords: Large-scale assessment, Gender equity, Sustainable developmental goals (SDG), Adolescents

Introduction

Despite women's increased presence in the public and political sphere over recent decades, gender inequality is still present in various domains (Bettio et al., 2013; Dotti Sani & Quaranta, 2017; Krook, 2010). Gender inequality manifests in wage differences (Biasi & Sarsons, 2021; Ciminelli et al., 2021), the underrepresentation of female academics in STEM (Tandrayen-Ragoobur & Gokulsing, 2022; Verdugo-Castro et al., 2022), and women's enrollment in higher education and completion gaps (Klasen, 2020). As a consequence, the quality of life of women is impoverished due to access to precarious jobs (Paraskevopoulou, 2020), care burden (Gérain & Zech, 2019), and domestic violence (Piquero et al., 2021).

Scholars argue that traditional beliefs toward gender roles are also responsible for the persisting inequalities between women and men (Farré & Vella, 2013; Inglehart & Norris, 2003). Gender status beliefs contribute to establishing organisational policies and social structures that create advantages for men over women (Kroska, 2014). The sexism levels a society holds predict in time the level of gender inequality countries have. Brandt (2011) compared the levels of sexism and achieved gender equality between different countries using the World Values Survey. Countries where most people believe that "On the whole, men make better political leaders than women do" were countries with higher gender inequality. That is, in countries where there is a higher gap between men and women regarding their access to managerial and professional jobs, there are higher gaps in parliamentary seats and higher salary gaps. Moreover, when sexism at the country level is compared between two-time points, the author found that sexism predicts decreases in gender equality over time. As such, these results support the idea that sexism acts as a hierarchy-enhancing ideology, hindering women's place in society.

Latin America appears as a challenging context. First, there is a worrisome level of prejudice against women among secondary students. The International Civic and Citizenship Education Study (ICCS 2016) results show that Latin-American students present lower support for gender equality endorsement. Using a strict threshold over the scores of "Students' attitudes toward gender rights", a commissioned report by UNESCO estimated the proportion of students endorsing gender equality (Sandoval-Hernández & Carrasco 2020b). That is, this report estimated the proportion of students in each participating country who were more likely to agree with statements such as "men and women should have the same rights in any way" and disagree with statements such as "men are better qualified to be political leaders than women". In this report, it is shown, on average, that only 3 out of 10 students (32%) support gender equality at the expected threshold among the Latin American participating countries. In the remainder of the

Table 1 Proportion of 8th-grade students endorsing the expected levels of gender equality support

Countries	Percentage	LL	UL	Countries	Percentage	LL	UL
Dominican Republic	**16%**	**14%**	**18%**	Korea, Republic of	55%	52%	57%
Russian Federation	16%	14%	18%	Slovenia	56%	54%	59%
Mexico	**17%**	**16%**	**19%**	Malta	57%	55%	59%
Latvia	25%	23%	27%	Croatia	58%	55%	60%
Bulgaria	26%	24%	28%	Italy	59%	56%	61%
Peru	**36%**	**34%**	**39%**	Belgium (Flemish)	62%	59%	65%
Lithuania	37%	34%	39%	Finland	63%	61%	66%
Colombia	**41%**	**38%**	**44%**	Chinese Taipei	69%	67%	71%
Hong Kong SAR	45%	42%	48%	Denmark	71%	69%	73%
Estonia	47%	44%	51%	Norway	72%	71%	74%
Chile	**52%**	**50%**	**54%**	Sweden	74%	71%	76%
Netherlands	53%	50%	56%				

Latin-American countries are highlighted in bold

LL lower limit of 95% confidence interval of estimated percentage, *UL* upper limit of 95% confidence interval of estimated percentage

participating countries of the study, this approximated figure is 53%. In Table 1, we reproduce these worrisome figures.

This lack of adhesion to gender equity is reflected as well in the presence of profiles of lower adhesion to gender equity attitudes among adolescents in some contexts, such as the Mexican, where there is a high proportion of "political sexist" students (López-Hornickel et al., 2023). And it is reflected as well in the multiple challenges among economic, physical and political autonomy materialised as the lack of labour opportunities and discrimination in incomes, overrepresentation of women in informal sectors, the traditional division of labour (housewife roles), and femicide rates (Medina-Hernández et al., 2021). These inequalities persist and are transmitted as given scenarios to younger generations (Dotti Sani & Quaranta, 2017).

The Latino-American context is characterised by being the most unequal region in the world (Inter-American Development Bank, 2024), presenting an average Gini of 0.46 in 2020 (CEPALSTATS, 2024). A distinctive feature of Latin American inequality is the excessive concentration of resources at the top of the distribution and the difference between the rich and the middle class (Torche, 2014). These social inequities and segregation have fostered segregation at the educational level (Torche, 2010), limiting intergenerational mobility (Torche, 2014). In an unequal scenario such as Latin America, the first question we address is: what is the association between socioeconomic status and the endorsement of attitudes toward gender equity?

Second, in this unequal scenario, can schools promote gender equity? Previous research with the International Civic and Citizenship Education Study (ICCS) study has pointed out the relevance of school environments in promoting tolerant attitudes (Caro & Schulz, 2012; Higdon, 2015), support for equal rights for all groups, and gender equality endorsement (Carrasco et al., 2018). However, part of this literature suggests that schools may have a more restricted influence on affective-behavioural outcomes, such as attitudes towards others (Miranda & Carrasco 2020). In the face of these contrasting views, in the present study, we also inquire how relevant school learning environments are to account for gender equity endorsement among 8th graders from Latin America.

There are ideological beliefs that can foster the endorsement of sexism. Authoritarianism is one of them and refers to the prioritisation of group conservation over their members' personal needs and values (Brandt & Henry, 2012). The rejection of people who do not follow group norms and/or do not submit to authority becomes an imperative under this ideological belief (Altemeyer, 1996; Duckitt, 2006; Funke, 2005). The Latin American region historically transitioned back to democratic governance towards the end of the last century, albeit with some instability in the adherence to democratic principles (Schulz et al., 2018a, 2018b). Recently, authoritarian regimes have reemerged, indicating a recognised democratic backsliding in the region (Schulz et al., 2018b). This willingness among adults to consider non-democratic options has been transmitted to the younger generations. There is a worrisome level of authoritarianism among secondary students. 69% agree with a dictatorship if this regime ensures security (Schulz et al., 2018b). Thus, this study's third question is: what is the relationship between authoritarianism at the individual and contextual level and the adhesion to attitudes toward gender equity in eighth-grade Latin American students?

Although all these conditions make it urgent for the Latin American region to attend to, few citizenship studies are focused in this context (e.g. Caro & Schulz, 2012; Carrasco et al., 2020, 2021; Sandoval et al. 2020; Sandoval-Hernandez & Miranda, 2021; Schulz et al., 2018b). Given the availability of data, we focused on five countries in Latin America: Chile, Dominican Republic, Mexico, Peru and Colombia. We know that these contexts do not represent the whole reality of the whole region. Nevertheless, we still find it relevant to refer to the results about them as part of the Latin American context. This is why we keep the reference to the region in the title.

This paper aims to address these queries and contribute to these gaps by presenting a literature review section, methodology, findings, discussion, and conclusions.

Literature review

Attitudes towards Gender Equity

The body of social psychology literature defines attitudes. Attitudes are evaluative judgments integrating affections and cognitions towards an object (Crano & Prislin, 2006). They can be defined in a spectrum that includes cognitive and mental aspects on one side and social group dynamics on the other (Hogg & Smith, 2007). When attitudes take the form of antipathy towards a group, these can be understood as a form of prejudice against the members of that group (Brown, 2010). In particular, sexism is a negative attitude towards women, i.e. prejudice against women, and it is based on beliefs and stereotypes regarding what women can and cannot do (Rudman & Phelan, 2007). What people believe regarding women's roles shapes what they expect, encourage, and sanction in women's behaviour (Mize, 2015). Endorsing prejudiced attitudes towards women serves as a way of justifying the current unequal system under the assumption that women deserve their place (Glick & Fiske, 2001). Sexism portrays women as taking a subordinate role to men (Barreto & Doyle, 2022; Rudman & Phelan, 2007), which has negative consequences for women as it is related to discrimination against them (Sibley & Perry, 2010) and women's lower career aspirations (Bradley-Geist et al., 2015). Experiencing sexism also triggers poor performance (Logel et al., 2009), among other consequences. All in all, sexist environments have detrimental effects on women.

Sexism varies among countries and people. For instance, developing countries present higher levels of sexism than more developed ones (Brandt, 2011), which is often attributed to the role of the universalisation of education in developed nations. Education is a carrier for endorsement of egalitarianism (Sibley & Perry, 2010). Indeed, previous research has found that more educated people hold less sexist attitudes (Rivera-Garrido, 2022).

Intergenerational transmission and socioeconomic status

Multi-country and multi-wave studies show how lower educational attainment predicts different forms of prejudice, including sexism and authoritarianism (Carvacho et al., 2013). The intergenerational transmission hypothesis (Schlozman et al., 2012) indicates that political disparities among parents are transmitted to the next generations. Following the intergenerational transmission hypothesis and literature on socioeconomic status and sexism (Ullrich et al., 2022), we expected the socioeconomic status of the

student's families, a composite factor that includes parents' educational attainment, to be positively associated with students' endorsement of gender equity [**Hypothesis 1**].

According to the 'sophistication hypothesis', people with a higher level of education will develop more sophisticated political attitudes (Highton, 2009). Thanks to education, adults are expected to structure their political opinions, facts, and concepts thanks to their knowledge (Lyons, 2017). More educated families provide socialisation environments to their children where discussion around political issues is encouraged, promoting the sophistication of political knowledge (Miranda, 2018). Under the assumption of a lack of socialisation practices is expected that the schools act as a compensatory agent, providing the opportunities and environment that are lacking at home (Hoskins et al., 2017).

The role of schools

Without an intervening process, students' sexism endorsement levels are expected to follow the transmission hypothesis based on students' family backgrounds. In contrast, school effectiveness models of civic education show how schools and observed teaching practices promote the development of political knowledge (Isac et al., 2011, 2014) and their expected political dispositions for democratic participation (see Knowles et al., 2018).

School environments with frequent open classroom discussions are expected to develop abilities to discuss, contrast opinions and respect others' points of view. This opposes closed arguments that simplify thoughts regarding political and social issues (Ehman, 1980). School practices that reduce the oversimplification of ideas and promote political sophistication are expected to act as a safeguard from authoritarianism endorsement among students (Carrasco et al., 2018). Moreover, open classroom discussion is a known effective factor that positively correlates with egalitarianism, such as the endorsement of gender equality and equal rights for ethnic and immigrant groups (Carrasco et al., 2018).

Not all students have access to political discussion at home. As such, schools that provide open classroom discussions of social and political issues with their students are expected to compensate for what their families lack regarding political socialisation (Hoskins et al., 2017). Open classroom discussion is a positive factor in civic education. It is a known promotor of civic knowledge among students, a measure of political sophistication (Isac et al., 2014), and many other expected positive outcomes in civic education (Knowles & McCafferty-Wright, 2015). As such, we expect students in schools with higher open classroom discussions would present more positive attitudes toward gender equity [**Hypothesis 2**].

Political sophistication and gender equity endorsement

Civic knowledge is a direct measure of political sophistication (Schulz et al., 2013); it covers the understanding of institutions, rights, and—in general—how citizenship and society work (Carrasco et al., 2020). Civic knowledge can be associated with a higher understanding of rights and responsibilities and awareness of gender issues since it is a variable linked to broader democratic engagement, including values of

equality and supporting democratic values (Torney-Purta et al., 2001). Thus, we expect students' higher civic knowledge would present a higher endorsement of gender equality [**Hypothesis 3**].

Authoritarianism

According to social psychology theory, ideologies are beliefs that organise people's attitudes, values, and thoughts about social order (Jost et al., 2009; Maio et al., 2006). Thus, they help explain why people act as they do (Jost, 2006). We can find system justification beliefs, social dominance, and authoritarianism (Jost et al., 2009) among these beliefs. Authoritarianism represents a person's (ideological) beliefs about the appropriate relationship between a group and its members. It encourages the subordination of personal needs and values to social norms and authorities to contribute to group cohesion and endorses aggression and prejudice towards people who challenge group norms (Altemeyer, 2004; Brandt & Henry, 2012; Duckitt, 2006; Funke, 2005, p. 200).

Research has shown that authoritarianism predicts homophobia, sexism, and prejudice[1] (Carvacho et al., 2013; Christopher et al., 2008; Whitley & Lee, 2000). Thus, high authoritarians are expected to present lower adhesion to gender equity than those with lower authoritarianism because of the need to secure social control and conformity to social norms [**Hypothesis 4**].

Furthermore, ideological beliefs can be related to attitudes and prejudice, not only at the individual level but also at the group level. Poteat et al., (2007) and Poteat and Spanierman (2010) found that peers' and classmates' ideological beliefs, i.e. the ideological climate, predicted individual homophobic and racist attitudes over and above individual ideology endorsement. Poteat et al., (2007) found that individuals expressed homophobic attitudes as a function of their peer group's endorsement of social dominance orientation, and peer groups socialised individuals' social dominance beliefs over time. Poteat and Spanierman (2010) also suggested that peer-group-ideology norms are internalised to some extent by individuals, finding that homophobic and racist attitudes of individuals were a reflection not only of their levels of social dominance, authoritarianism and universal-diverse orientation but also of the ideological views of their peers.

These contextual effects have been found in more extensive settings. Van Assche et al., (2017) found that right-wing authoritarianism climates in countries and within-country regions were associated with negative attitudes towards age, ethnicity, and gender-based outgroups. Thus, ideological environments can affect individual attitudes (Fischer, 2009) over and above individual ideological views as representational structures, while attitudes and beliefs tend to be normatively consistent with reference groups (Crano & Prislin, 2006). Thus, we expect to find a significant and negative relationship between authoritarianism at the group level and adhesion to gender equity, over and above students' authoritarianism endorsement [**Hypothesis 5**].

[1] Prejudice corresponds to any negative attitude toward other(s), including affective and cognitive components (APA, 2023).

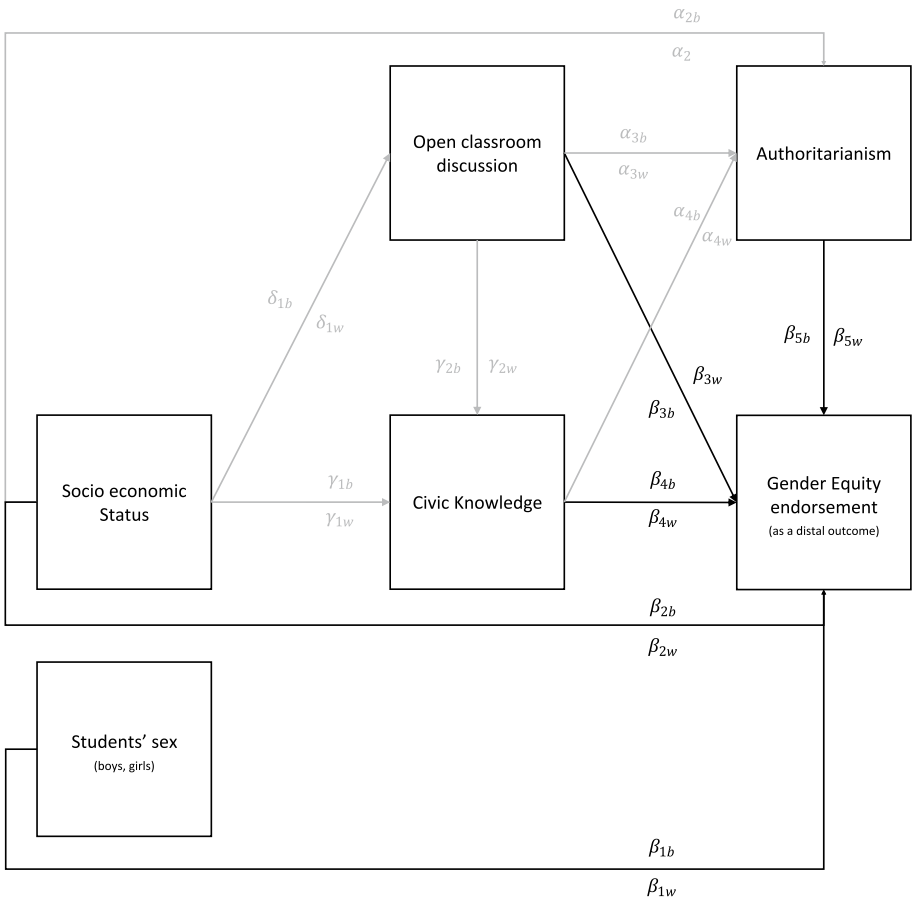

Fig. 1 Conceptual model on gender equity endorsement as a distal outcome

Conceptual model

In the present study, we follow the conceptual model proposed by Carrasco and colleagues (Carrasco et al., 2018, 2020, 2021), which discusses the interlinks between students' socioeconomic background, open classroom discussion, political sophistication, ideological beliefs, and democratic attitudes as distal outcomes. In this model, it is assumed that students from different socioeconomic backgrounds may present unequal access to school practices relevant to the promotion of democratic values due to school segregation (Carrasco et al., 2020). Consequently, students can experience differing exposure levels to open classroom discussion, a known school effective factor in civic education (Knowles et al., 2018). Thus, conditional to the exposure to this school practice, students are expected to show differing levels of authoritarianism endorsement.

(Carrasco et al., 2021). Finally, students are expected to present different levels of democratic values endorsement as a distal outcome (Carrasco et al.,2020; Carrasco et al., 2016). We use data from the ICCS 2016 and fit different multilevel path analysis models on probabilistic samples of 8th graders from Chile, Colombia, the Dominican Republic, Mexico and Peru to illustrate the expectations of this conceptual model when applied to students' attitudes towards equal rights for men and women. In Fig. 1, we present the rationale of this conceptual model.

In Fig. 1, we distinguish all the expected relationships given the conceptual model. Each expected path is partitioned within schools and between schools' paths. Between school estimates are signalled with a b subscript, while within schools' estimates are signalled with a w subscript. In the present study, we only focus on the direct relations between the selected covariates and gender equity endorsement, highlighted in black. As such, even if the conceptual model includes indirect paths between socioeconomic status and authoritarianism, these are expected relations considered by the rationale that are out of the scope of the present article. We are particularly focused on the relationships to gender equity endorsement as a distal outcome.

This model helps the study to answer the expected results, already mentioned throughout the previous section, and listed here as formal hypotheses:

Hypothesis 1 Students from families from lower socioeconomic status are expected to present a lower endorsement of gender equity (Fig. 1, β_{2w}).

Hypothesis 2 Students exposed to higher levels of open classroom discussion (OPD) are expected to present higher gender equity endorsement (Fig. 1, β_{3b}).

Hypothesis 3 Students with higher civic knowledge are expected to endorse a higher gender equity level (Fig. 1, β_{4w})

Hypothesis 4 Students across schools who endorse a higher level of authoritarianism will present a lower adhesion to gender equity attitudes (Fig. 1, β_{5w}).

Hypothesis 5 Students who are part of schools with a higher level of authoritarianism will present a lower adhesion to gender equity attitudes over and above their own authoritarianism levels (Fig. 1, $0 > \beta_{5b} - \beta_{5w}$).

Methods

Data

As data, we use the Latin American module of the International Civic and Citizenship Education Study ICCS 2016 (Köhler et al., 2018). ICCS 2016 is a large-scale assessment study that surveys students and schools on civic and citizenship education aspects. The Latin-American module includes representative samples of 8th graders from Chile, Colombia, the Dominican Republic, Mexico and Peru. This study uses a two-stage sample design, where schools are selected using a stratified sample, and all students from the same classroom participate in the survey from each selected school. We provide more details regarding the nominal number of participating students and schools from each country in Table 1.

The main reason for using this ICCS 2016, instead of ICCS 2022 (the most updated study round), is the availability of different countries from the Latin American region. In 2022 only two countries participated in the study (Colombia and Brazil) (Schulz et al., 2023), which gives us less variability to understand the research questions.

Table 2 Descriptive estimates at the population level and nominal samples per country

	Chile		Colombia		Dominican republic		Mexico		Peru	
Variables	**E**	**(SE)**	**E**	**(SE)**	**E**	**(SE)**	**E**	**(SE)**	**E**	**(SE)**
Students' attitudes toward sgender rights (GEN)	52.17	(0.25)	50.34	(0.30)	44.30	(0.20)	45.28	(0.14)	48.70	(0.26)
Students' sex (SEX) (proportion of girls)	0.49	(0.01)	0.53	(0.01)	0.51	(0.01)	0.50	(0.01)	0.48	(0.02)
Socioeconomic status (SES)	0.00	(0.33)	0.00	(0.38)	0.00	(0.33)	0.00	(0.33)	0.00	(0.34)
Open classroom discussion (OPD)	52.26	(0.32)	49.28	(0.32)	48.24	(0.39)	51.06	(0.23)	53.03	(0.26)
Civic knowledge (CIV)*	48.25	(0.31)	48.21	(0.34)	38.14	(0.30)	46.70	(0.25)	43.77	(0.35)
Authoritarianism (AUT)	45.09	(0.31)	48.16	(0.34)	54.84	(0.26)	49.26	(0.31)	50.85	(0.24)
Number of students	5081		5609		3937		5526		5166	
Number of schools	178		150		141		213		206	

Population level estimates for each selected variable in the present study, accounting for sampling design. *Civic knowledge estimates using plausible values, divided by ten

Measures

We retrieved scale scores present in the ICCS 2016 study. These scores are generated using Rasch item response theory (IRT) models based on students' responses to different items. Socio-economic status (SES) scores are an exemption since SES are factor scores generated for each participating country (Schulz et al., 2018a, 2018b, p151). In Table 2, we summarise the selected variables for the present study, reporting their means and standard deviation estimates at the population level. In the following section, we describe our outcome variable and predictor variables. More technical details of the scale scores and their instruments are made available in the technical report of the ICCS 2016 study (Schulz et al., 2018b).

Dependent variable "Student's attitudes toward gender equality" is a scale score generated with students' responses to six statements. Each uses four-category response options from "strongly disagree" to "strongly agree". Exemplary statements from this scale are "Men are better qualified to be political leaders than women" (reversed items), "Men and women should get equal pay when they are doing the same jobs", and "Men and women should have the same rights in every way". This scale score has an international mean of 50 points and a standard deviation of 10 points, where a higher score represents a higher endorsement of gender equality responses across all items. In the present study, we refer to this variable as "gender equity endorsement" (GEN).

Independent variables As conditioning variables of gender equity endorsement, we include students' sex, socioeconomic status of students' families, open classroom discussion, civic knowledge, and authoritarianism endorsement.

Students' sex is included in the models as a dichotomous variable where boys are coded as zero, and girls are coded as one (SEX).

Socioeconomic Status (SES) summarises students' responses to questions about parents' education, occupational index, and the number of books at home. SES has a mean of zero for each participating country and a standard deviation of 10.

Open classroom discussion (OPD) summarises students' responses to six different statements regarding the frequency of classroom discussion of political and social issues during regular lessons. Students use four response categories (never, rarely, sometimes, often) to report the frequency of different classroom discussion features. For example, students report how frequently "Teachers encourage students to discuss the issues with people having different opinions" and "Teachers present several sides of the issues when explaining them in class". Higher scores in this scale represent a higher reported frequency across all discussion descriptors.

"Students' endorsement of authoritarian government practices" is a scale score generated using the responses to nine different statements. We refer to this scored scale as "Authoritarianism Endorsement" (AUT). Students respond to various statements expressing authoritarianism endorsement from the government, using four categories of responses (Strongly Disagree, Disagree, Agree, and Strongly Agree). Exemplary statements of this scale are "It is better for government leaders to make decisions without consulting anybody", "People in government must enforce their authority even if it means violating the rights of some citizens", and "It is fair that the government does not comply with the law when it thinks it is not necessary". Higher scores denote a higher endorsement of authoritarianism.

These two previous scale scores have a mean of 50 and a standard deviation of 10 scores on the international scale and are also generated using a Rasch response model.

Civic Knowledge (CIV) is represented by five plausible values with an international mean of 500 and a standard deviation of 100. These scores are generated using a Rasch item response model, onto responses from a booklet rotated test (Schulz, Ainley, Fraillon, et al., 2018, p11), including multiple choice (79 items) and constructed responses (9 items). Participating students answered 30 items covering topics about society and systems, civic principles, civic participation, and civic identities. These test scores measure political sophistication (Schulz et al., 2013), representing students' knowledge and ability to reason using civic and citizenship knowledge.

Analytical strategy

We fit a series of average population models (McNeish et al., 2017) and regression models, including its survey design, to make inferences about the population of students in 8.th grade in the participating countries. We use these different models to assess each selected predictor's unique and combined contribution and their indirect effects on gender equity endorsement. We use Taylor Series Linearization to get correct standard errors of our estimates (Stapleton, 2013), with scaled survey weights, to ensure each country survey sample contributes evenly to the pooled sample's model estimates (Gonzalez, 2012). We include Civic Knowledge plausible values as imputed values and apply Rubin's (1987) rules to get combined estimates (Rutkowski et al., 2010). Moreover, we divided each plausible value by a constant of ten, so all continuous variables present in the fitted models are on a similar scale (ICCS 2016 uses an international mean of 50, and a standard deviation of 10). We fit all models using Mplus 8.11 (Muthén & Muthén, 2017), via MplusAutomation (Hallquist & Wiley, 2018) to aid the retrieval of results. A copy of the generated code to produce the results is available at: https://figshare.com/s/5b1b6178a16669edbda4

All fitted models are specified as disaggregated models (Rights et al., 2020) and fitted as population averages (see Stapleton, 2013, p381). This model specification allows us to separate accounted variance by observed student factors across schools and accounted variance by observed school-level factors. To fit such models, we centred all covariates to their school mean and included the school means of all covariates (Enders & Tofighi, 2007). Thus, the variance accounted by the fitted model is separated into within-school and between-school observed factors. Additionally, we include country fixed effects. This last term helps us to account for non-observed heterogeneity between countries, while also helping us to retrieve an amount of attributable variance between countries.

We fit regression models as a sequence where each precedent model is nested in the next. This model-building strategy allows us to compare models and estimate overall indirect effects. The model-building sequence is the following: we first fit a sex gap model (Model 1) to describe the main differences between boys and girls, then fit a socioeconomic gap model (Model 2) to assess how much variance is accounted for by families' socioeconomic background. In a third step (Model 3), we include open classroom discussion scores to assess this school practice contribution while accounting for student schools' composition (students and schools SES). In Model 4, we include students' civic knowledge scores, and in Model 5, we include authoritarianism to assess its

additional accounted variance in gender equality endorsement. Finally, in Model 6, we include countries' fixed effects to assess the countries' unique contribution after all considered factors. To assure all models are nested, we specify each model, as constraint model of the fully saturated model (Model 6). The following equation expresses the final model, to which all previous models are nested.

$$\begin{aligned} gen_{ij} = {} & \beta_{00} + \beta_{1w}\left(sex_{ij} - \overline{sex}_{.j}\right) + \beta_{1b}\left(\overline{sex}_{.j} - \overline{sex}_{..}\right) \\ & + \beta_{2w}\left(ses_{ij} - \overline{ses}_{.j}\right) + \beta_{2b}\left(\overline{ses}_{.j} - \overline{ses}_{..}\right) \\ & + \beta_{3w}\left(opd_{ij} - \overline{opd}_{.j}\right) + \beta_{3b}\left(\overline{opd}_{.j} - \overline{opd}_{..}\right) + \beta_{4w}\left(civ_{ij} - \overline{civ}_{.j}\right) \\ & + \beta_{4b}\left(\overline{civ}_{.j} - \overline{civ}_{..}\right) + \beta_{5w}\left(aut_{ij} - \overline{aut}_{.j}\right) \\ & + \beta_{5b}\left(\overline{aut}_{.j} - \overline{auti}_{..}\right) + \beta_{6b}CHL + \beta_{7b}DOM + \beta_{8b}MEX \\ & + \beta_{9b}PER + \epsilon_{ij} \end{aligned} \tag{1}$$

In this model specification, all terms indexed with a "w" are informative of relations between students across schools, while terms indexed with a "b" are informative of school factors and students gender equality endorsement.

To answer the first question (what is the association between socioeconomic status and the endorsement of attitudes toward gender equity?) we fit regression models for each predictor and retrieve their model-accounted variance (R^2). Moreover, we fit a model centred within the school covariate's part to retrieve the combined accounted variance of students' characteristics across schools and a model including all the school means to retrieve the additional accounted variance by the observed school factors from the present model. Finally, we add the country-fixed effects to assess the countries' context contribution to students' gender equality endorsement.

To answer the second question ("Can schools promote gender equity endorsement among students?"), we estimate different results. First, we report the variance accounted for by the school-observed factors proposed in the present study. Moreover, we assess the unique contribution of open classroom discussion as a specific school effectiveness factor of civic and citizenship education with positive returns on gender equity endorsement. Finally, we retrieve indirect effects of open classroom discussion by model comparisons.

Finally, to address the third question ("What is the relationship between authoritarianism at the individual and contextual level and the adhesion to attitudes toward gender equity?"), we followed the same procedure as for the first question to estimate the authoritarianism of students across schools (within) and then the variation between students across schools (between), obtaining the contextual effect by the subtraction of both of these estimates.

We have opted for the present model in search of a more parsimonious solution that can address our research questions in contrast to the structural equations model that would represent more fully the expectations of Fig. 1 (e.g., Carrasco et al., 2020). Although a single regression analysis alone cannot account for possible indirect or mediation estimates, which the conceptual model of Fig. 1 implies, the comparison between nested regression models is an alternative to provide estimates of the indirect effects estimates of interest (Hayes, 2022; Jose, 2013), while limiting the number of produced estimates. Moreover, we rely on the conceptual model depicted in Fig. 1 to illustrate

our expected indirect paths, which guide what models need to be compared to retrieve indirect effect estimates. Finally, thanks to the disaggregated model specification we are using, we can separate conditional variation of students across schools (within estimates), conditional variation between students (between estimates), and get contextual effects estimates (the difference between and within estimates). This last type of estimate is of special relevance because we are interested in assessing the conditional variation in gender equity endorsement due to differences in authoritarianism endorsement at the group level, that is, over and above the student's own authoritarianism endorsement.

Results

Model accounted variance Our saturated model accounts for 45% of the variance of gender equity endorsement among students (Model 6) (Table 3). When we only let the within-components vary freely across schools (β_{1w}-β_{5w}), the model accounts for up to 21% of the variance. If we add to this later step the between-school covariates (β_{1w}-β_{5w}, β_{1b}-β_{5b}), the model accounts for up to 40% of the variance, while if we add the country fixed effects, these account for 5% of the variance. Thus, of the total variance, students selected characteristics account for 21%, and school-observed characteristics add 19% of the additional accounted variance. As such, a non-ignorable portion of the variance is accounted by school-level factors and a smaller additional variance is accounted by countries as a whole.

Main predictors Of the proposed covariates, Civic Knowledge (CIV) is the predictor with the highest unique accounted variance ($R^2 = 0.34$). Students with higher civic knowledge scores present a higher endorsement of gender equity than their counterparts with less civic knowledge (Model 0: $\beta_{4w} = 0.52$, SE = 0.01, $p < 0.001$, see Table 3). The second highest covariate with a larger accounted variance is students' authoritarianism endorsement ($R^2 = 0.29$). Authoritarianism endorsement is a negative predictor of gender equity endorsement; across schools' students with higher authoritarianism endorsement scores are expected to have lower gender equity endorsement (Model 0: $\beta_{5w} = -0.33$, SE = 0.01, $p < 0.001$) (see Table 3). Open classroom discussion and socioeconomic status scores positively predict students' gender equity endorsement, presenting a unique contribution of 10% and 7% of the accounted variance. Country differences alone account for 11% of the variance. However, country differences account for only 5% of the variance in Model 6 after students and school observed factors are included in the model. Thus, some of the differences between countries might be attributable to students and schools observed factors. Finally, students' sex, as a single predictor, accounts for a small portion of the variance of gender equality endorsement ($R^2 = 0.04$). Across schools, girls present higher gender equity endorsement mean scores, in contrast to their boys' classmates (Model 0: $\beta_{5w} = 3.04$, SE = 0.12, $p < 0.00$, see Table 3).

Model estimates Model 1 reports the first covariate, students' sex. Its results are the same as the previously described results. Girls present higher scores than their male counterparts across schools.

In model 2, the family's socioeconomic status accounts for an additional 7% of the variance. Across schools, students from families of higher socioeconomic status present higher scores on gender equity endorsement (Model 2: $\beta_{2w} = 0.10$, SE = 0.01,

Table 3 Regression models conditioning gender equality endorsement (unstandardised estimates and standard errors)

Variables	Model Term			Model	1	Model	2	Model	3	Model	4	Model	5	Model	6
		E(SE)	*p*	E(SE)	*p*	E(SE)	*p*	E(SE)	*p*	E(SE)	*p*	E(SE)	*p*	E(SE)	*p*
SEX	$\beta_{1w}(sex_{ij} - \overline{sex}_{.j})$	3.04	***	3.04	***	3.12	***	2.90	***	2.24	***	2.07	***	2.08	***
		(0.12)		(0.12)		(0.12)		(0.12)		(0.11)		(0.10)		(0.10)	
	$\beta_{1b}(\overline{sex}_{.j} - \overline{sex}_{..})$	5.22	***	5.22	***	4.41	***	3.05	***	2.52	***	2.20	***	2.48	***
		(1.29)		(1.29)		(1.01)		(0.86)		(0.66)		(0.63)		(0.49)	
SES	$\beta_{2w}(ses_{ij} - \overline{ses}_{.j})$	0.09	***			0.10	***	0.09	***	0.03	***	0.02	***	0.02	***
		(0.01)				(0.01)		(0.01)		(0.01)		(0.01)		(0.01)	
	$\beta_{2b}(\overline{ses}_{.j} - \overline{ses}_{..})$	0.38	***			0.37	***	0.27	***	0.03		0.03		0.03	
		(0.02)				(0.02)		(0.02)		(0.02)		(0.02)		(0.02)	
OPD	$\beta_{3w}(opd_{ij} - \overline{opd}_{.j})$	0.12	***					0.10	***	0.04	***	0.04	***	0.04	***
		(0.01)						(0.01)		(0.00)		(0.00)		(0.00)	
	$\beta_{3b}(\overline{opd}_{.j} - \overline{opd}_{..})$	0.52	***					0.39	***	0.13	***	0.12	***	0.07	***
		(0.03)						(0.03)		(0.02)		(0.02)		(0.02)	
CIV	$\beta_{4w}(civ_{ij} - \overline{civ}_{.j})$	0.52	***							0.49	***	0.37	***	0.38	***
		(0.01)								(0.01)		(0.01)		(0.01)	
	$\beta_{4b}(\overline{civ}_{.j} - \overline{civ}_{..})$	0.61	***							0.53	***	0.31	***	0.41	***
		(0.01)								(0.02)		(0.03)		(0.03)	
AUT	$\beta_{5w}(aut_{ij} - \overline{aut}_{.j})$	−0.33	***									−0.17	***	−0.17	***
		(0.01)										(0.01)		(0.01)	
	$\beta_{5b}(\overline{aut}_{.j} - \overline{aut}_{..})$	−0.68	***									−0.31	***	−0.20	***
		(0.02)										(0.03)		(0.03)	
	β_{6b} CHL	1.79	***											1.14	***
		(0.44)												(0.24)	
	β_{7b} DOM	−6.01	***											−0.61	*
		(0.38)												(0.29)	

Table 3 (continued)

Variables	Model Term			Model	1	Model	2	Model	3	Model	4	Model	5	Model	6
	β_{8b} MEX	−5.07	***											−4.24	***
		(0.36)												(0.21)	
	β_{9b} PER	−1.64	***											0.62	*
		(0.42)												(0.25)	
	Intercept	48.25	***	48.25	***	48.21	***	48	***	47.91	***	48.01	***	48.62	***
		−0.12		−0.12		−0.1		−0.09		−0.07		−0.07		−0.18	
	R^2			0.04		0.11		0.16		0.36		0.40		0.45	
	ΔR^2					0.07		0.05		0.20		0.14		0.05	

Note: SEX = students' sex (girls = 1, boys = 0), *SES* = socioeconomic status, *OPD* = open classroom discussion, *CIV* = Civic Knowledge, *AUT* = authoritarianism endorsement. R^2 = accounted variance, ΔR^2 = additional accounted variance. p = ***p < 0.001; **p < 0.01; *p < 0.05

$p < 0.001$, Table 3). Moreover, students from schools with higher socioeconomic composition present higher gender equity endorsement than students from mean socioeconomic composition (Model 2: $\beta_{2b} - \beta_{2w} = 0.27$, $Z = 12.07$, $p < 0.001$). Thus, schools' socioeconomic composition presents contextual relations to gender equity endorsement not accounted for by students' sex and socioeconomic differences alone.

Model 3 adds open classroom discussion scores to the model. OPD scores account for an additional 5% of the variance of the gender equity endorsement. Students from schools with higher levels of open classroom discussion are expected to have higher levels of gender equity endorsement (Model 3: $\beta_{3b} = 0.39$, $SE = 0.03$, $p < 0.001$, Table 3). Using Model 3, in comparison to Model 2, we can estimate the indirect effect of school SES composition via open classroom discussion. This estimate is 0.10 and is 27% of the total estimate of the school SES (Model 2 β_{2b}—Model 3 $\beta_{2b} = 0.10$, $Z = 3.54$, $p < 0.001$). Thus, we have evidence that students' family's socioeconomic status partially conditions students' gender equity endorsement via the connection of schools' socioeconomic compositions and its shared variance with the access to open classroom discussion.

Adding civic knowledge students' scores to the previous model (Model 4) increments the accounted variance to 20% ($\Delta R^2 = 0.20$). Across schools, students with higher civic knowledge scores are expected to have higher levels of gender equity endorsement (Model 4: $\beta_{4w} = 0.49$, $SE = 0.01$, $p < 0.001$, Table 3). There is also a substantial reduction in the direct estimate of open classroom discussion between the previous model and Model 4. We observed an indirect effect of Open classroom discussion of 0.26, which accounts for 67% of its total direct estimate from Model 3 (Model 3 β_{3b}—Model 4 $\beta_{3b} = 0.26$, $Z = 7.21$, $p < 0.001$). This latter figure is partial evidence that a portion of the relation between open classroom discussion and gender equity occurs via civic knowledge.

Students' Authoritarianism endorsement adds 14% of variance over students' sex, socioeconomic status, open classroom discussion and civic knowledge. Across schools, students with higher authoritarianism endorsement are expected to present lower gender equity endorsement in comparison to their classmates (Model 5: $\beta_{5w} = -0.17$, $SE = 0.01$, $p < 0.001$, Table 3). Additionally, students from schools with higher levels of authoritarianism endorsement, as a whole, are expected to present even lower levels of gender equity endorsement in comparison to students in schools of average levels of authoritarianism (Model 5: $\beta_{5b} - \beta_{5w} = -0.14$, $Z = 4.43$, $p < 0.001$). The present model provides evidence of the contextual effects of authoritarianism. Schools with higher levels of authoritarianism are a risk factor for gender equity support among students, over and above students' own authoritarianism levels.

Finally, in Model 6, we include countries' fixed effects. Countries' contextual differences account for 5% of the additional variance, over and above the selected school attributes. Moreover, countries' fixed effects partially outweigh the contextual impact of authoritarianism from the previous model. Thus, we interpret those countries as presenting substantive differences in authoritarianism endorsement, accounting partially for the contextual effects of this factor.

Discussion

Latin America continues to demonstrate lower adherence to gender equity attitudes among adolescents compared to international standards (Sandoval-Hernandez et al., 2020b). These antecedents are consistent with the region's discrimination against women and girls (Medina-Hernández et al., 2021) and a cultural frame of *egalitarian essentialism* (Cotter et al., 2011), which allows women to have more opportunities in the public area but asks them simultaneously to fulfil traditional roles in the private space.

The present work underscores the interplay between socioeconomic status, classroom practices, and ideological climates in shaping students' attitudes toward gender equity. The findings reinforce and extend theoretical understandings of how individual and contextual factors contribute to gender equity endorsement, addressing gaps in the literature. The formulated hypotheses were in the expected direction.

Higher socioeconomic status is associated with a higher endorsement of gender equity. As noted in the literature, people with higher education and access to resources present a higher political sophistication (Highton, 2009). This is a challenge in a scenario like Latin America, where social inequality is persistent. This finding highlights the critical need to address structural inequities in education to ensure opportunities to learn for disadvantaged students.

Authoritarianism shouldn't be overlooked as a relevant factor in understanding students' endorsement of gender equality. In a region where over fifty per cent of students agree with dictatorial statements (Schulz et al., 2018), seeing a negative relationship between individual authoritarianism and attitudes toward gender equality is alarming. The negative relationship between authoritarianism and gender equity endorsement, both at the individual and contextual levels, highlights the role of ideological beliefs in preserving traditional gender roles. Authoritarianism, as discussed in the literature (Altemeyer, 1996; Duckitt, 2006), promotes conformity and hierarchy, which directly conflict with egalitarian principles. The contextual effect of authoritarianism—where the ideological climate of a school influences individual attitudes—resonates with social group theory (Hogg & Smith, 2007) and prior findings on peer-group dynamics (Poteat et al., 2007). This suggests that even students with lower personal authoritarianism are susceptible to adopting sexist attitudes in environments where such ideologies are dominant. These findings emphasize the importance of targeting not only individual beliefs but also group-level dynamics within schools to promote gender equity.

These results are consistent with what has been found previously for homophobia (Poteat & Spanierman, 2010; Poteat et al., 2007), ethnic attitudes (Thijs & Verkuyten, 2013), and attitudes towards age and gender-based outgroups (Van Assche et al., 2017). Peers' beliefs can influence students' attitudes; peers' endorsement of authoritarianism is positively related to students' endorsement of sexism. This is why we emphasise the relevance of ideological climates in classrooms. When the group can connect to your disposition to support gender equity, each student's level of authoritarianism is not just "an opinion", nor "just your opinion".

The results show a bleak story in which a classroom's ideological beliefs compromise attitudes towards girls and women in society. What can schools do?

Previous studies assume schools have little influence on non-cognitive outcomes, such as students' intergroup attitudes, due to the low school variance (Miranda & Carrasco

2020). Nevertheless, the present study shows how observed school factors from the learning environment account for 19% of the variance of gender equality endorsement among students. Using previous rounds of the same study (ICCS, 2009), we found that open classroom discussion is a school effectiveness factor that promotes gender equity endorsement among students. Open classroom discussion encourages students to debate ideas, contrast opinions, and understand different points of view, promoting tolerance (Carrasco et al., 2018). Moreover, if there is any endogeneity between students' socioeconomic status, and the students access to open classroom discussion, and our estimates are bias, our estimates should be downward bias (see Castellano et al., 2014). As such, our results support the relevance of open classroom discussion practices, as promoter of gender equity endorsement between students.

Civic knowledge emerged as the most significant predictor of gender equity endorsement, aligning with the theoretical framework of political sophistication (Highton, 2009; Schulz et al., 2013). Civic knowledge enables students to critically engage with democratic principles and recognise gender inequality as a societal issue, reinforcing egalitarian values. These findings support the sophistication hypothesis, which posits that higher levels of education and knowledge promote more nuanced political and social attitudes (Highton, 2009; Miranda, 2018). By equipping students with the tools to understand and challenge systemic inequalities, civic knowledge is a gateway to fostering broader support for democratic and inclusive values, including gender equity.

Conclusion

This study underscores the intricate interplay between socioeconomic status, classroom practices, ideological climates, and their influence on students' attitudes toward gender equity in Latin America. The findings reveal critical factors shaping gender equity endorsement and provide valuable insights into how education systems in the region can promote more egalitarian values, contributing to the broader goal of achieving gender equality as envisioned by the Sustainable Development Goals (SDG), particularly SDG 5.

The Latin American context presents unique challenges that magnify the relevance of these findings. Persistent socioeconomic inequalities, deeply rooted authoritarian legacies, and cultural norms that perpetuate traditional gender roles make addressing gender equity endorsement among adolescents especially urgent. The significant association between socioeconomic status and gender equity endorsement highlights the structural barriers that disadvantaged lower-income families face, limiting access to quality education and inclusive school environments.

Civic knowledge emerged as a critical predictor of gender equity endorsement, illustrating its crucial role in equipping students with tools to embrace democratic principles. This seems a key element that can eventually have a transformative force in a region where authoritarian beliefs remain prevalent.

School practices that counteract the high need for closure can positively be related to political attitudes (Van Assche et al., 2017), including attitudes towards women (Roets et al., 2011). Open classroom discussion seems to fit the bill since it encourages students to express their opinions and contrast others' views (Ehman, 1969), embrace political conflict (Campbell, 2008), thereby counteracting the need for closure, and become more

politically knowledgeable and less supportive of authoritarian practices (Hahn & Tocci, 1990).

This study contributes to a less developed research area in citizenship and civic results, which is usually more oriented toward studying civic knowledge and political participation among young people (Knowles et al., 2018). Less is known about attitudes, even when these are crucial for the creation and preservation of democratic societies in the future. As well, even when there are critical aspects that characterised the Latin American region, few studies in the area of citizenship are worried about developing analyses in this context. We think this is also a gap to which this work contributes.

To achieve the Sustainable Development Goals (SDG), mainly number 5, regarding gender equity, it is essential to attend to what is happening in school classrooms about promoting democratic and egalitarian values. Students' attitudes towards gender equity are particularly relevant because they relate to their conceptions about women's place in society and their future decisions (Burt & Scott, 2002). In this sense, the definition of social psychology and its understanding of attitudes as part of a continuum between cognitive individual dispositions and social dynamics (Hogg & Smith, 2007) becomes relevant when we see that contextual effects are critically associated with attitudes toward gender equity.

We identify two main limitations in this study. First, if there is endogeneity of students' socioeconomic status and access to open classroom discussion as a school practice, the current estimates may depart from causal inference estimates, presenting a downward bias (see Castellano et al., 2014). Second, gender equity is equal access to rights, duties, and opportunities in the social, cultural, economic, and political spheres among various genders (considering binary and non-binary and genderqueer) (Gomes da Silva et al., 2021). In the present study, we partially address gender equity and focus on equity among women and men. Because of the restrictions of the data, we refer to gender equality, considering women and men instead of binary and non-binary genders.

As future directions, we think that this research can benefit from exploring the analysis of intersectionality and also considering changes through time. In the first case, analysing how intersecting identities—such as gender, socioeconomic status, and ethnicity—are associated with access to school factors and learning, such as civic knowledge, open classroom discussion, and attitudes toward gender equity. This would give a nuanced perspective on Latin America, where structural inequalities and authoritarian legacies persist, the intersection of these factors creates unique barriers and opportunities for fostering equitable attitudes. In the second idea, comparisons of different waves of the survey could reveal how these attitudes change over time, considering additional data sources that allow the identification of eventual civic education programs in each context.

Author contributions

NLH designed the article, conducted the background and literature review, interpreted the results, wrote the discussions and conclusions, and drafted the work. DC has designed the methodology of the work, as well as its analysis and interpretation of the results. SL has contributed to the interpretation of the analyses and discussions and the draft of the work. ET has revised this work, contributing significant comments to improve it, particularly in discussions and conclusions.

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Availability of data and materials
The datasets generated and/or analysed during the current study are available in the IEA (International Association for the Evaluation of Educational Achievement) repository, https://www.iea.nl/index.php/data-tools/repository/iccs The code developed for the analysis is available on this website https://figshare.com/s/5b1b6178a16669edbda4.

Declarations

Competing interests
The authors declare that they have no competing interests.

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References

Altemeyer, B. (1996). *The authoritarian specter*. Cambridge MA US: Harvard University Press.
Altemeyer, B. (2004). Highly dominating, highly authoritarian personalities. *Journal of Social Psychology, 144*(4), 421–448. https://doi.org/10.3200/SOCP.144.4.421-448
APA. (2023, November 15). *Prejudice*. American Psychological Association. https://dictionary.apa.org/prejudice
Barreto, M., & Doyle, D. M. (2022). Benevolent and hostile sexism in a shifting global context. *Nature Reviews Psychology, 2*(2), 98–111. https://doi.org/10.1038/s44159-022-00136-x
Bettio, F., Tinios, P., & Betti, G. (2013). *The Gender Gap in Pensions in the EU*. https://doi.org/10.2838/43810
Biasi, B., & Sarsons, H. (2021). Flexible Wages, Bargaining, and the Gender Gap. *The Quarterly Journal of Economics, 137*(1), 215–266. https://doi.org/10.1093/qje/qjab026
Bradley-Geist, J. C., Rivera, I., & Geringer, S. D. (2015). The collateral damage of ambient sexism: Observing sexism impacts bystander self-esteem and career aspirations. *Sex Roles, 73*(1–2), 29–42. https://doi.org/10.1007/s11199-015-0512-y
Brandt, M. J. (2011). Sexism and gender inequality across 57 societies. *Psychological Science*. https://doi.org/10.1177/0956797611420445
Brandt, M. J., & Henry, P. J. (2012). Gender inequality and gender differences in authoritarianism. *Personality and Social Psychology Bulletin*. https://doi.org/10.1177/0146167212449871
Brown, R. (2010). *Prejudice: Its social psychology* (2nd ed.). Wiley-Blackwell: New Jersey.
Burt, K. B., & Scott, J. (2002). Parent and adolescent gender role attitudes in 1990s Great Britain. *Sex Roles, 46*, 78.
Campbell, D. E. (2008). Voice in the classroom: How an open classroom climate fosters political engagement among adolescents. *Political Behavior, 30*(4), 437–454. https://doi.org/10.1007/s11109-008-9063-z
Caro, D. H., & Schulz, W. (2012). Ten hypotheses about tolerance toward minorities among Latin American adolescents. *Citizenship, Social and Economics Education, 11*(3), 213–234. https://doi.org/10.2304/csee.2012.11.3.213
Carrasco, D. A., & Banerjee, R. (2016). Walk the talk! Civic knowledge, democratic values, and the role of school climate for open discussion. A moderated mediation approach. In *Multivariate Approaches to School Climate Factors and School Outcomes DOCTOR OF PHILOSOPHY IN PSYCHOLOGY MULTIVARIATE APPROACHES TO SCHOOL CLIMATE FACTORS AND SCHOOL OUTCOMES* (pp. 175–200). http://sro.sussex.ac.uk/
Carrasco, D., Banerjee, R., Treviño, E., & Villalobos, C. (2020). Civic knowledge and open classroom discussion: Explaining tolerance of corruption among 8th-grade students in Latin America. *Educational Psychology, 40*(2), 186–206. https://doi.org/10.1080/01443410.2019.1699907
Carrasco, D., & Pavón Mediano, A. (2021). Tolerance of corruption among students in Latin America. In E. Treviño, D. Carrasco, E. Claes, & K. J. Kennedy (Eds.), *Good Citizenship for the Next Generation A Global Perspective Using IEA ICCS 2016 Data* (pp. 107–125). Cham: Springer.
Carrasco, D., & Torres Irribarra, D. (2018). The role of classroom discussion. In A. Sandoval-Hernández, M. M. Isac, & D. Miranda (Eds.), *Teaching Tolerance in a Globalized World* (pp. 87–101). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-78692-6
Carvacho, H., Zick, A., Haye, A., González, R., Manzi, J., Kocik, C., & Bertl, M. (2013). On the relation between social class and prejudice: The roles of education, income, and ideological attitudes. *European Journal of Social Psychology, 43*(4), 272–285. https://doi.org/10.1002/ejsp.1961
Castellano, K. E., Rabe-Hesketh, S., & Skrondal, A. (2014). Composition, context, and endogeneity in school and teacher comparisons. *Journal of Educational and Behavioral Statistics, 39*(5), 333–367. https://doi.org/10.3102/1076998614547576
CEPALSTATS. (2024, November 20). *Portal of inequalities in Latin America*. Gini Concentration Index According to Geographic Area. https://statistics.cepal.org/portal/inequalities/incomes.html?lang=en&indicator=3289
Christopher, A. N., Wojda, M. R., Abraham, K., Hauser, J., Marek, P., & Walter, M. (2008). Social dominance orientation, right-wing authoritarianism, sexism, and prejudice toward women in the workforce. *Psychology of Women Quartely, 32*, 65–73.

Ciminelli, G., Schwellnus, C., & Stadler, B. (2021). Sticky floors or glass ceilings? The role of human capital, working time flexibility and discrimination in the gender wage gap. *OECD Economics Department Working Papers*. https://doi.org/10.1787/02ef3235-en

Cotter, D., Hermsen, J. M., & Vanneman, R. (2011). The end of the gender revolution? gender role attitudes from 1977 to 2008. *American Journal of Sociology, 117*(1), 259–289. https://doi.org/10.1086/658853

Crano, W. D., & Prislin, R. (2006). Attitudes and persuasion. *Annual Review of Psychology, 57*, 345–374. https://doi.org/10.1146/annurev.psych.57.102904.190034

Dotti Sani, G. M., & Quaranta, M. (2017). The best is yet to come? Attitudes toward gender roles among adolescents in 36 countries. *Sex Roles, 77*(1–2), 30–45. https://doi.org/10.1007/s11199-016-0698-7

Duckitt, J. (2006). Differential effects of right wing authoritarianism and social dominance orientation on outgroup attitudes and their mediation by threat from and competitiveness to outgroups. *Personality and Social Psychology Bulletin, 32*(5), 684–696. https://doi.org/10.1177/0146167205284282

Ehman, L. H. (1969). An analysis of the relationships of selected educational variables with the political socialization of high school students. *American Educational Research Journal, 6*(4), 559–580. https://doi.org/10.3102/00028312006004559

Ehman, L. H. (1980). The american school in the political socialization process. *Review of Educational Research, 50*(1), 99–119. https://doi.org/10.3102/00346543050001099

Enders, C. K., & Tofighi, D. (2007). Centering predictor variables in cross-sectional multilevel models: A new look at an old issue. *Psychological Methods, 12*(2), 121–138. https://doi.org/10.1037/1082-989X.12.2.121

Farré, L., & Vella, F. (2013). The intergenerational transmission of gender role attitudes and its implications for female labour force participation. *Economica, 80*(318), 219–247. https://doi.org/10.1111/ecca.12008

Fischer, R. (2009). Where is culture in cross cultural research?: An outline of a multilevel research process for measuring culture as a shared meaning system. *International Journal of Cross Cultural Management, 9*(1), 25–49. https://doi.org/10.1177/1470595808101154

Funke, F. (2005). The dimensionality of right-wing authoritarianism: Lessons from the dilemma between theory and measurement. *Political Psychology, 26*(2), 195–218. https://doi.org/10.1111/j.1467-9221.2005.00415.x

Gérain, P., & Zech, E. (2019). Informal Caregiver burnout? Development of a theoretical framework to understand the impact of caregiving. *Frontiers in Psychology*. https://doi.org/10.3389/fpsyg.2019.01748

Glick, P., & Fiske, S. T. (2001). An Ambivalent Alliance. *56*(2), 109–118. https://doi.org/10.1037//O003-066X.56.2.1O9

Gomes da Silva, C., Carpejani, G., Finatto, CPa., Dillon Scalia, M., de Andrade, O., & Guerra, J. B. S. (2021). *Gender Equality Through Women's Empowerment in Science*. Cham: Springer International Publishing.

Gonzalez, E. (2012). Rescaling sampling weights and selecting mini-samples from large-scale assessment databases. In International Association for the Evaluation of Educational Achievement & Educational Testing Service (Eds). *IERI Monograph Series Issues and Methodologies in Large-Scale Assessments* (pp. 115–134). IERInstitute.

Hahn, C. L., & Tocci, C. M. (1990). Classroom climate and controversial issues discussions: A five nation study. *Theory and Research in Social Education, 18*(4), 344–362. https://doi.org/10.1080/00933104.1990.10505621

Hallquist, M. N., & Wiley, J. F. (2018). MplusAutomation: An r package for facilitating large-scale latent variable analyses in Mplus. *Structural Equation Modeling: A Multidisciplinary Journal, 25*(4), 621–638. https://doi.org/10.1080/10705511.2017.1402334

Hayes, A. F. (2022). *Introduction to mediation, moderation, and conditional process analysis*. The Guilford Press.

Higdon, J. (2015). Chapter 5: intercultural attitudes among adolescents across Europe: a multi-level, multiple- group analysis examining student attitudes, intergroup contact, and school climate. In M. M. Isac (Ed.), *Mapping the determinants of young people's attitudes towards equal rights for immigrants and ethnic/racial minorities in Europe*. Belgium: European Union.

Highton, B. (2009). Revisiting the relationship between educational attainment and political sophistication. *Journal of Politics, 71*(4), 1564–1576. https://doi.org/10.1017/S0022381609990077

Hogg, M. A., & Smith, J. R. (2007). Attitudes in social context: A social identity perspective. *European Review of Social Psychology, 18*(1), 89–131. https://doi.org/10.1080/10463280701592070

Hoskins, B., Janmaat, J. G., & Melis, G. (2017). Tackling inequalities in political socialisation: A systematic analysis of access to and mitigation effects of learning citizenship at school. *Social Science Research, 68*, 88–101. https://doi.org/10.1016/j.ssresearch.2017.09.001

Inglehart, R., & Norris, P. (2003). *Rising tide: Gender equality and cultural change around the world*. Cambridge: Cambridge University Press.

Inter-American Development Bank. (2024, March 6). *IDB | The Complexities of Inequality in Latin America and the Caribbean*. https://www.iadb.org/en/news/complexities-inequality-latin-america-and-caribbean

Isac, M. M., Maslowski, R., Creemers, B., & van der Werf, G. (2014). The contribution of schooling to secondary-school students' citizenship outcomes across countries. *School Effectiveness and School Improvement, 25*(1), 29–63. https://doi.org/10.1080/09243453.2012.751035

Isac, M. M., Maslowski, R., & van der Werf, G. (2011). Effective civic education: An educational effectiveness model for explaining students' civic knowledge. *School Effectiveness and School Improvement, 22*(3), 313–333. https://doi.org/10.1080/09243453.2011.571542

Jose, P. (2013). *Doing statistical mediation and moderation*. Guilford Press.

Jost, J. T. (2006). The end of the end of ideology. *American Psychologist, 61*(7), 651–670. https://doi.org/10.1037/0003-066X.61.7.651

Jost, J. T., Federico, C. M., & Napier, J. L. (2009). Political ideology: Its structure, functions, and elective affinities. *Annual Review of Psychology, 60*, 307–337. https://doi.org/10.1146/annurev.psych.60.110707.163600

Klasen, S. (2020). *From 'MeToo' to Boko Haram: A survey of levels and trends of gender inequality in the world*. Amsterdam: Elsevier Ltd.

Knowles, R. T., & McCafferty-Wright, J. (2015). Connecting an open classroom climate to social movement citizenship: A study of 8th graders in Europe using IEA ICCS data. *Journal of Social Studies Research, 39*(4), 255–269. https://doi.org/10.1016/j.jssr.2015.03.002

Knowles, R. T., Torney-Purta, J., & Barber, C. (2018). Enhancing citizenship learning with international comparative research: Analyses of IEA civic education datasets. *Citizenship Teaching and Learning, 13*(1), 7–30. https://doi.org/10.1386/ctl.13.1.7_1
Köhler, H., Weber, S., Brese, F., Schulz, W., & Carstens, R. (2018). *ICCS 2016 user guide for the international database EDITORS*. IEA: France.
Krook, M. L. (2010). Women's representation in parliament: A qualitative comparative analysis. *Political Studies, 58*(5), 886–908. https://doi.org/10.1111/j.1467-9248.2010.00833.x
Kroska, A. (2014). *The social psychology of gender inequality*. Germany: Springer Science and Business Media BV.
Logel, C., Walton, G. M., Spencer, S. J., Iserman, E. C., von Hippel, W., & Bell, A. E. (2009). Interacting with sexist men triggers social identity threat among female engineers. *Journal of Personality and Social Psychology, 96*(6), 1089–1103. https://doi.org/10.1037/a0015703
López-Hornickel, N., & Sandoval-Hernández, A. (2023). Profiles of attitudes toward gender equality among Latin American adolescents. *Pensamiento Educativo*. https://doi.org/10.7764/PEL.60.2.2023.6
Lyons, P. (2017). *Political knowledge in the Czech Republic*.
Maio, G. R., Olson, J. M., Bernard, M. M., & Luke, M. A. (2006). Ideologies, values, attitudes, and behavior. In J. Delamater (Ed.), *Handbook of Social Psychology* (pp. 283–308). New York: Springer, US.
McNeish, D., Stapleton, L. M., & Silverman, R. D. (2017). On the unnecessary ubiquity of hierarchical linear modeling. *Psychological Methods, 22*(1), 114–140. https://doi.org/10.1037/met0000078
Medina-Hernández, E., Fernández-Gómez, M. J., & Barrera-Mellado, I. (2021). Gender inequality in latin america: A multidimensional analysis based on eclac indicators. *Sustainability (Switzerland)*. https://doi.org/10.3390/su132313140
Miranda, D. (2018). *DESIGUALDAD Y CIUDADANÍA: UNA APROXIMACIÓN INTERGENERACIONAL* [Pontificia Universidad Católica de Chile]. http://www.repositorio.uc.cl/descarga-ficha/Desigualdad%20y%20ciudadan%C3%ADa%20:%20%20una%20aproximación%20intergeneracional
Miranda, D., & Carrasco, D. (2020). *¿Cuánto aportan las escuelas en diversos aspectos de la formación ciudadana?: evidencias desde ICCS*. https://www.researchgate.net/publication/344219601
Mize, T. D. (2015). What social psychology can contribute to the study of sex, gender, and sexual orientation. *Sociology Compass, 9*(12), 1066–1081. https://doi.org/10.1111/soc4.12331
Muthén LK, Muthén BO. (2017). *Mplus User's Guide*. Muthén & Muthén.
Paraskevopoulou, A. (2020). Gender and precarious work. In K. F. Zimmermann (Ed.), *Handbook of Labor, Human Resources and Population Economics* (pp. 1–18). Cham: Springer International Publishing.
Piquero, A. R., Jennings, W. G., Jemison, E., Kaukinen, C., & Knaul, F. M. (2021). Domestic violence during the COVID-19 pandemic - Evidence from a systematic review and meta-analysis. *Journal of Criminal Justice*. https://doi.org/10.1016/j.jcrimjus.2021.101806
Poteat, V. P., Espelage, D. L., & Green, H. D. (2007). The socialization of dominance: peer group contextual effects on homophobic and dominance attitudes. *Journal of Personality and Social Psychology, 92*(6), 1040–1050. https://doi.org/10.1037/0022-3514.92.6.1040
Poteat, V. P., & Spanierman, L. B. (2010). Do the ideological beliefs of peers predict the prejudiced attitudes of other individuals in the group? *Group Processes and Intergroup Relations, 13*(4), 495–514. https://doi.org/10.1177/1368430209357436
Rights, J. D., Preacher, K. J., & Cole, D. A. (2020). The danger of conflating level-specific effects of control variables when primary interest lies in level-2 effects. *British Journal of Mathematical and Statistical Psychology, 73*(S1), 194–211. https://doi.org/10.1111/bmsp.12194
Rivera-Garrido, N. (2022). Can education reduce traditional gender role attitudes? *Economics of Education Review, 89*, 102261. https://doi.org/10.1016/j.econedurev.2022.102261
Roets, A., Hiel, A. V. A. N., & Dhont, K. (2011). Is sexism a gender issue ? A motivated social cognition perspective on mens and womens sexist attitudes toward own and other gender. *European Journal of Personality*. https://doi.org/10.1002/per
Rubin, D. B. (1987). *Multiple imputation for nonresponse in surveys*. John Wiley & Sons.
Rudman, L. A., & Phelan, J. E. (2007). Sex differences, sexism, and sex: The social psychology of gender from past to present. *Advances in Group Processes, 24*, 19–45. https://doi.org/10.1016/S0882-6145(07)24002-0
Rutkowski, L., Gonzalez, E., Joncas, M., & von Davier, M. (2010). International large-scale assessment data: Issues in secondary analysis and reporting. *Educational Researcher, 39*(2), 142–151. https://doi.org/10.3102/0013189X10363170
Sandoval-Hernández, A., & Carrasco, D. (2020). *A Measurement Strategy for SDG*.
Sandoval-Hernández, A., & Carrasco, D. (2020b). *A Measurement Strategy for SDG. Thematic Indicators 4.7.4 and 4.7.5 using International Large Scale Assessments in Education*. https://tcg.uis.unesco.org/wp-content/uploads/sites/4/2020/06/Measurement-Strategy-for-474-and-475-using-ILSA_20200625.pdf
Sandoval-Hernández, A., & Miranda, D. (2021). The landscape and recent developments of civic and citizenship education across the Latin American region. *Influences of the IEA Civic and Citizenship Education Studies* (pp. 261–275). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-71102-3_22
Schlozman, K., Verba, S., & Brady, H. (2012). Chapter 7. Unequal at the Starting Line: The Intergenerational Persistence of Political Inequality. In *The Unheavenly Chorus: Unequal Political Voice and the Broken Promise of American Democracy* (pp. 177–198). http://ebookcentral.proquest.com/lib/bath/detail.action?doc
Schulz, W., Carstens, R., Losito, B., & Fraillon, J. (2018b). ICCS 2016 Technical Report (W. Schulz, R. Carstens, B. Losito, & J. Fraillon (eds.)). International Association for the Evaluation of Educational Achievement (IEA).
Schulz, W., Ainley, J., Cox, C., & Friedman, T. (2018a). *Young People's Views of Government, Peaceful Coexistence, and Diversity in Five Latin American Countries IEA International Civic and Citizenship Education Study 2016 Latin American Report*.
Schulz, W., Ainley, J., Fraillon, J., Losito, B., Agrusti, G., Damiani, V., & Friedman, T. (2023). *Education for citizenship in times of global challenge IEA international civic and citizenship education study 2022 international report*. France: IEA.
Schulz, W., Fraillon, J., & Ainley, J. (2013). Measuring young people's understanding of civics and citizenship in a cross-national study. *Educational Psychology, 33*(3), 334–356. https://doi.org/10.1080/01443410.2013.772776

Sibley, C. G., & Perry, R. (2010). An opposing process model of benevolent sexism. *Sex Roles, 62*(7–8), 438–452. https://doi.org/10.1007/s11199-009-9705-6
Stapleton, L. M. (2013). 17 incorporating sampling weights into single-and multilevel analyses. In L. Rutkowski, M. von Davier, & D. Rutkowski (Eds.), *Handbook of International Large scale Assessment: background, technical issues, and methods of data analysis* (pp. 363–388). USA: Chapman and Hall/CRC.
Tandrayen-Ragoobur, V., & Gokulsing, D. (2022). Gender gap in STEM education and career choices: What matters? *Journal of Applied Research in Higher Education, 14*(3), 1021–1040. https://doi.org/10.1108/JARHE-09-2019-0235
Thijs, J., & Verkuyten, M. (2013). Multiculturalism in the classroom: Ethnic attitudes and classmates' beliefs. *International Journal of Intercultural Relations, 37*(2), 176–187. https://doi.org/10.1016/j.ijintrel.2012.04.012
Torche, F. (2010). Economic crisis and inequality of educational opportunity in Latin America. *Sociology of Education, 83*(2), 85–110. https://doi.org/10.1177/0038040710367935
Torche, F. (2014). Intergenerational mobility and inequality: The Latin American case. *Annual Review of Sociology, 40*, 619–642. https://doi.org/10.1146/annurev-soc-071811-145521
Torney-Purta, J., Lehman, R., Oswald, H., & Schulz, W. (2001). *Citizenship and education in twenty-eight countries: Civic knowledge and engagement at age fourteen*. IEA: France.
Ullrich, R., Becker, M., & Scharf, J. (2022). The development of gender role attitudes during adolescence: Effects of Sex, socioeconomic background, and cognitive abilities. *Journal of Youth and Adolescence, 51*(11), 2114–2129. https://doi.org/10.1007/s10964-022-01651-z
Van Assche, J., Roets, A., De Keersmaecker, J., & Van Hiel, A. (2017). The mobilizing effect of right-wing ideological climates: cross-level interaction effects on different types of outgroup attitudes. *Political Psychology, 38*(5), 757–776. https://doi.org/10.1111/pops.12359
Verdugo-Castro, S., García-Holgado, A., & Sánchez-Gómez, M. C. (2022). The gender gap in higher STEM studies: A systematic literature review. *Heliyon, 8*(8), e10300. https://doi.org/10.1016/j.heliyon.2022.e10300
Whitley, B. E., & Lee, S. E. (2000). The relationship of authoritarianism and related constructs to attitudes toward homosexuality. *Journal of Applied Social Psychology, 30*(1), 144–170. https://doi.org/10.1111/j.1559-1816.2000.tb02309.x

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